Name(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Team #/Color:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

School Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2018 Science Olympiad BCS Invitational Division B Answer Key

Station 1

1.*Hyla versicolor,* Gray tree frog

2. Their call/vocalization

3. *Bufu americanus americanus,* Eastern American toad

4. *Pseudacris crucifer crucifer,* Northern Spring Peeper

Station 2

1. A: Alligator B: Crocodile

Alligators have a blunt rounded snout. Crocodile snouts are narrow and arrow-shaped. Crocodiles’ fourth lower incisor show as well the top teeth when the mouth is closed.

1. Septum
2. Keratin
3. Strong tail structure for swimming and leaping from the water, diapsid skull that allows for large muscle attachment-powerful jaws, vertical pupils for hunting at night-the tapetum lucidum reflects incoming light, I-beam structure encloses the back muscles making it stronger and more rigid, powerful legs for running, claws for tearing and digging, nostrils on top of snout-easier to ambush prey, an extra transparent eyelid on each eye that can be closed to protect their eye when underwater, flap of skin at the back of their throat that prevents water from seeping in when they attack prey underwater. They can also close their nostrils and ears in a similar manner to prevent the unwanted influx of water.
4. 40 degrees

Station 3

1. A: Scarlet King snake, *Lampropeltis elapsoides*

B: Eastern Coral snake, *Micrurus fulvius*

1. Coral snakes have black snouts/noses, coral snake pattern encircles the entire snake ventral to dorsal, the king snake’s pattern fades to a solid white or cream on the ventral side. Yellow touches red, you’re dead. Red touches black, venom lack.
2. A type of asexual reproduction in which the offspring develops from unfertilized eggs.

R. braminus is an all female species of blind snake that is thought to be able to be traced back to a single female.

1. The way snakes feed, The upper left jaw arch moves while the other 3 arches hold the prey in place. It then follows upper right, lower left, and then lower right. The process repeats until the prey is consumed.

Station 4

1. Eastern Hellbender, *Cryptobranchu alleganiensis alleganiensis*

Cryptobranchidae

1. The mudpuppy has external gills on either side of its head. The hellbender has dorsoventral folds that maximize oxygen absorption through the skin.
2. The Lacey Act
3. *Batrachochytrium salamandrivorans, B. salamandrivorans, Bsal*

Station 5

1. Cheloniidae (sea turtles)
2. Retract their head and feet into their shell
3. Threats- Overharvesting for food, eggs, pet trade. Habitat loss and degradation. Pollution. Incidental catch in fishing nets. Climate change skewing the sex ration in favor of all females.

Counteracting threats- Breeding farms for food and pet trade. Clean up pollution from ocean and beaches. Change use of nets and lines in favor of single catch lines. Conservation of nesting areas. Protecting young from predators so more make it to the ocean. Sea rescue and release of injured individuals.

1. Geomagnetic imprinting, using magnetic fields to return to nests.

Station 6

1. Jacobsen’s organ or vomeronasal organ.

Sensing particulates in the air/chemoreception.

1. A: Venom canal

B: Glottis

C: Heat-sensing pit or Loreal pit

D: Venom Gland

1. Family- Viperidae, Subfamily- Crotalinae.

Heat sensing pits between the nostrils and the eyes.

1. Eastern Massasauga rattlesnake, *Sistrusus catenatus catenatus*

Station 7

1. Eastern Milk snake,  *Lampropeltis triangulum triangulum*
2. **Sidewinding-** progress in sideways rather than in forward motion, lifts anterior part of body and moves that to the side, it rests the anterior part on the sand and the posterior follows the pattern, the process repeats.

**Serpentine or Lateral Undulation-** A series of S-shaped horizontal loops, each loop pushes against any resistance it can find, most snakes move like this.

**Concertina-** First the tail and posterior are securely anchored, then the anterior half of the body stretches as far as it can, that part is then anchored and the posterior scrunches up like a concertina to meet the anterior and the process repeats. Tree snakes travel like this.

**Caterpillar or Rectilinear-** Body moves in a straight line due to a flow of muscle contractions along the sides that looks like a caterpillar in motion, sequential lifting, anchoring and pushing against individual ventral scales results in inching along. Used by heavy-bodied snakes like boas and vipers.

1. Common Adder or European Viper, *Vipera berus*

Station 8

1. *Terrapene Carolina Carolina,* Eastern Box turtle
2. High-doomed carapace and hinged plastron allows this turtle to completely enclose itself in its shell. Looks like a box.
3. A: lizards B: snakes

C: crocodiles D: Turtles

1. Florida

Station 9

1. Tail whipping or dropping, odors, playing dead, body form and posturing, display of color, balling.
2. A: *Hemidactylium scutatum,*  Four-toed salamander B: *Clouber constrictor foxi,* Blue racer

C: *Sceloporus pointsettii,* Crevice spiny lizard

D: *Emydoidea blandingii,* Blanding’s turtle